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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/620,729	Applicant(s) IMAI ET AL.	
	Examiner KATHLEEN S. YUAN	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 March 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

The response received on 3/11/2009 has been placed in the file and was considered by the examiner. An action on the merit follows.

Response to Amendment

1. The amendments filed on 11 March 2009 have been fully considered. Response to these amendments is provided below.

Summary of Amendment/ Arguments and Examiner's Response:

2. *The applicant has amended in additional limitations into the claim and argued that the prior art does not meet the limitations of the currently amended claim.*

3. Applicant's arguments with respect to the 1claims have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-6, 8, 14, 16-19, 21-23, 26-28 31, 35, 37 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6079862 (Kawashima et al)

in view of U.S. Patent No. 5864640 (Miramonti et al) and U.S. Patent No. 7102666 (Kanade et al).

Regarding claim 26, Kawashima et al discloses an apparatus comprising: a camera positional control device which is configured to generate signals to control the positions of the cameras to change photographing directions of the cameras (fig. 14, items 10a and 10b), the signals being whatever signals the moveable tables must generate to move the cameras; a two-dimensional image processing system which is configured to perform two-dimensional evaluation of image data, an object recognition and a coordinate measurement, obtained by at least a first one of the cameras to detect an object (fig. 14, items 5a, 5b, 15a and 15b); a stereoscopic image processing system (fig. 14, item 14) which is configured to perform stereoscopic evaluation of image data, the stereoscopic measurement including distance information for a plurality of points, 3D coordinates (col. 15, lines 45-48) the images being obtained from both the first one of the cameras and a second one of the cameras to detect an object (fig. 14, items 4a and 4b provide image data for all measurements including detecting an object: items 5a and 5b and other image data such as the coordinate calculation: items 15a and 15b, and continues to 3D measurements, fig. 14, item 14), said first one and second one of the cameras including at least the camera for providing the 2D image processing system, since both the cameras contain a 2D processing system (fig. 14, items 5a, 5b, 15a and 15b), the stereoscopic image processing system being configured to perform the stereoscopic evaluation when the first one and second one of the cameras are controlled to photograph an overlapping range which includes the object, since the 3D

coordinate is calculated (fig. 14, item 14) when there is an overlapping range (fig. 15); and a controller which is configured to control the operation of the cameras and the camera positional control device (fig. 14, items 12a and 12b and any of the arrows or processes that control the operation of the device, in particular, the arrow between 15a and 15b to item 14), said controller also being configured to control a mode of operation of the apparatus such that in a first mode, the mode carried out in fig 14, items 5a, 5b 15 and 15b, image data obtained by at least a first one of the cameras is evaluated by said two-dimensional image processing system and in a second mode, the mode carried out in fig. 14, items 14, 6, 11, and 7, image data obtained from both the first one of the cameras and a second one of the cameras are evaluated by said stereoscopic image processing system, since the image data calculated from the previous steps are input all input into item 14, said controller further being configured to switch between said first and second modes of operation, as seen by the arrow switching the mode of operation by continuing the process, based on a current mode of said apparatus, the mode being that the coordinates are calculated from items 15a and 15b, and an output from the two-dimensional image processing system, the output of the 2D mode, which is input for the 3D mode, wherein in response to the measurement of the object by the 2D image processing system based on the image obtained by at least the first one of the cameras (fig. 14, item 5a, 5b), the camera positional control device is adapted to respond by controlling the position of the first one of the camera(fig. 14, item 12a and 10a) based on a detected position of the object by the first one of the cameras (fig. 14, item 15a), so that the first and second cameras \photograph the overlapping range of

fig. 15, which includes the object, and the stereoscopic image processing conducts stereoscopic measurement of distance of a point of the object (fig. 14, item 14).

Kawashima et al does not disclose expressly that the stereoscopic measurement includes distance information for a plurality of points on the object and that the camera positional control device controls the second one of the cameras using the information from the first one of the cameras.

Miramonti et al discloses stereoscopic measurements include distance information for a plurality of points on the object being examined/ tracked (abstract).

Kawashima et al and Miramonti et al are combinable because they are from the same field of endeavor, i.e. tracking objects in 3D.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art use points on the object and furthermore, though the claim doesn't require it, multiple points at a single time on the surface of the object.

The suggestion/motivation for doing so would have been to provide a more accurate/ detailed representation of the object to a viewer, thus providing a more robust apparatus.

Kawashima et al (as modified by Miramonti et al) does not disclose expressly that the camera positional control device also controls the second one of the cameras using the information from the first one of the cameras.

Kanade et al discloses that in a multiple camera system, wherein one camera's information (fig. 3, item 24) is used to control the positions of the second/ other ones of the cameras with a positional control unit (fig. 3, items 26, col. 4, lines 5-18).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the position of one camera to control the positions of the other cameras.

The suggestion/ motivation for doing so would have been to provide a more robust system by having the cameras use consistent information.

Therefore, it would have been obvious to combine the apparatus of Kawashima et al with the 3D scanner of Miramonti et al to and the master/slave control unit of Kanade et al obtain the invention as specified in claim 26.

6. Regarding claim 27, Kawashima et al discloses that the two-dimensional image processing system is configured in said first mode to perform two-dimensional evaluation of image data obtained from at least one of said cameras to detect an object, as detected by the image recognition units (fig. 14, item 5a and 5b), which receives its input from cameras 4a and 4b.

7. Regarding claim 28, Kawashima et al discloses the controller is configured to switch from said first mode to said second mode based on an output from the two-dimensional image processing system, since the arrow between items 15a and 15b to item 14 outputs the information from the first mode, which indicates the presence of an object detected in the image data, obtained by at least one of a first one of the cameras, as executed by the image recognition units (fig. 14, items 5a and 5b), and obtained by both cameras (fig. 14, items 14a and 14b).

8. Regarding claim 1, Kawashima et al discloses a system comprising: a positional control portion for controlling positions of the cameras to change photographing

directions of the cameras (fig. 14, items 12a, 12b, 10a, 10b); a two-dimensional measurement portion for conducting two-dimensional measurement of the object based on the image of the object, the measurements being either the image recognition measurements and/or the coordinate calculation measurements, the image being obtained by at least one of the cameras (fig. 14, items 5a, 5b, 15a, and 15b); a stereoscopic measurement portion for conducting stereoscopic measurement of the object, which is configured to perform stereoscopic evaluation of image data, the stereoscopic measurement including distance information for a plurality of points, 3D coordinates (col. 15, lines 45-48), based on the images of the object (fig. 14, item 14), the images being obtained by at least two of the cameras said at least two cameras including at least the camera for providing an image for the two-dimensional measurement portion (fig. 14, items 4a and 4b) the stereoscopic measurement portion being configured to perform the stereoscopic measurement (fig. 14, item 14) when a first one and a second one of the cameras are controlled to photograph an overlapping range which includes the object (fig. 15); and switching portion for switching to 2D to 3D measurements seen in fig. 14, switching to 15a or 15b to 14 to perform an operation (fig. 14, item 7) wherein in response to the measurement of the object by the 2D measurement portion based on the image obtained by at least the first one of the cameras (fig. 14, item 5a, 5b), the positional control portion is adapted to respond by controlling the position of the first one of the camera (fig. 14, item 12a and 10a) based on a detected position of the object by the first one of the cameras (fig. 14, item 15a), so that the first and second cameras photograph the overlapping range of fig. 15, which

includes the object, and the stereoscopic image processing conducts stereoscopic measurement of distance of a point of the object (fig. 14, item 14).

Kawashima et al does not disclose expressly that the stereoscopic measurement includes distance information for a plurality of points on the object and that the positional control portion controls the second one of the cameras using the information from the first one of the cameras.

Miramonti et al discloses stereoscopic measurements include distance information for a plurality of points on the object being examined/ tracked (abstract).

Kanade et al discloses that in a multiple camera system, wherein one camera's information (fig. 3, item 24) is used to control the positions of the second/ other ones of the cameras with a positional control unit (fig. 3, items 26, col. 4, lines 5-18).

9. Regarding claim 2, Kawashima et al disclose that a 2D measurement portion conducts a 2D measurement based on the image obtained by only one of the cameras when showing that each camera has only one 2D measurement portion (fig. 14, item 4a corresponds to items 5a and 15a and item 4b corresponds to items 5b and 15b). Thus each 2D measurement contains only one 2D portion each.

10. Regarding claim 3, Kawashima discloses that the cameras allow for photographing directions different from each other (fig. 16, Θ_{m1t} and Θ_{m2t}), and the cameras are controlled so as to photograph ranges differing from each other, to track object 6 of fig. 16, thus having the different direction Θ_{m1t} and Θ_{m2t}, and to face directions differing from each other, as seen in fig. 16. This is all done when the two dimensional measurement is conducted because these cameras are CCD cameras that

obtain images in 2D (col. 15, line 25); in which 3D coordinates can later be calculated (fig. 14, item 14).

11. Regarding claim 4, Kawashima discloses that the cameras allow for photographing directions different from each other (fig. 16, Θ_{m1t} and Θ_{m2t}), and the positions of the cameras are controlled so that the cameras photograph an overlapping range when the stereoscopic measurement is conducted, since the cameras are controlled to track an object as allowed by items 12a and 12b of fig. 14, thus overlapping a range since the object must be in both the images.

12. Regarding claim 5, Kawashima et al discloses the positional control portion controls the positions of the cameras allow for photographing directions different from each other (fig. 16, Θ_{m1t} and Θ_{m2t}) and face directions different from each other, as seen in fig. 15, when the 2D measurement portion conducts 2D measurement, since the cameras follow an object (col. 15, lines 27-30) and the positions of the cameras are controlled so that the cameras photograph an overlapping range when the stereoscopic measurement is conducted, since the cameras are controlled to track an object as allowed by items 12a and 12b of fig. 14, thus overlapping a range since the object must be in both the images. Kawashima et al further discloses switching between operating the two-dimensional measurement portion in an initial condition, a condition that the image is taken by cameras (fig. 14, items 4a and 4b), operating the stereoscopic measurement portion (fig. 14, arrow between items 15a and 15b to item 14) when the two-dimensional measurement portion detects a moving object (fig. 14, items 12a and 12b).

13. Regarding claim 6, the positional control portion controls the entire position and posture of the cameras, since items 10a and 10b are rotating tables (col. 15, line 27), allowing for any position or posture of the cameras.

14. Regarding claim 8, in Kawashima et al, positional control portion allows for control of the position and posture of each of the cameras since it allows for rotation about the two axes in fig. 2 of the axis between items 3a and 2, and the axis at 3b, in a synchronous manner because they follow they track object at the same time.

15. Regarding claim 14, Kawashima et al discloses the switching is configured to switch between a first mode of measurement of the object based on the images of the object from the cameras using the two-dimensional measurement portion (fig. 14, items 5a, 5b) and a second mode of measurement of the object using the stereoscopic measurement portion, said switching being based on a current mode of measurement, since if the mode is on 2D measurement, then the next mode is 3D measurement, on an output from the two-dimensional measurement portion, since it uses the 2D measurement portion to get through to the 3D portion, as seen in fig. 14.

16. Regarding claim 16, Kawashima et al discloses switching between measurement of the object using the two-dimensional measurement portion (fig. 14, items 5a and 15a) and using the stereoscopic measurement portion (fig. 14, item 14) based on whether an object is detected (fig. 14, item 5a).

17. Regarding claim 17, Kawashima et al discloses a system comprising: a camera position control system for outputting camera position control signals to change photographing directions of the cameras, a movable control unit (fig. 14, items 12a and

12b) which outputs desired movements of the cameras, said camera position control system being configured to enable control of directions of the two cameras independently from each other, since both cameras individually follow the object (fig. 14, item 12a and 12b) and do not move depending on the movement of the other camera; a two-dimensional measurement device for conducting two-dimensional measurement of the object based on the image of the object, a stereoscopic measurement device for conducting stereoscopic measurement of the object based on the images of the object, the stereoscopic measurement including distance information for a plurality of points of the object (fig. 14, item 14) the images being obtained by both of the cameras (fig. 14, items 5a, 5b, 15a and 15b), the stereoscopic measurement device being configured to perform the stereoscopic measurement when both the cameras are controlled to photograph an overlapping range which includes the object (fig. 15) and a switching portion for switching to 2D to 3D measurements seen in fig. 14, switching to 15a or 15b to 14 to perform an operation (fig. 14, item 7) wherein in response to the measurement of the object by the 2D measurement device based on the image obtained by at least the first one of the cameras (fig. 14, item 5a, 5b), the camera position control system is adapted to respond by controlling the position of the first one of the camera (fig. 14, item 12a and 10a) based on a detected position of the object by the first one of the cameras (fig. 14, item 15a), so that the first and second cameras photograph the overlapping range of fig. 15, which includes the object, and the stereoscopic image processing conducts stereoscopic measurement of distance of a point of the object (fig. 14, item 14)..

Kawashima et al does not disclose expressly that the stereoscopic measurement includes distance information for a plurality of points on the object and that the positional control portion controls the second one of the cameras using the information from the first one of the cameras.

Miramonti et al discloses stereoscopic measurements include distance information for a plurality of points on the object being examined/ tracked (abstract).

Kanade et al discloses that in a multiple camera system, wherein one camera's information (fig. 3, item 24) is used to control the positions of the second/ other ones of the cameras with a positional control unit (fig. 3, items 26, col. 4, lines 5-18).

18. Regarding claim 18, Kawashima discloses that the cameras allow for photographing directions different from each other (fig. 16, Θ_{m1t} and Θ_{m2t}), when any of the measurements occur, including the 2D measurements, as shown, for instance, in fig. 15). Furthermore, Kawashima et al discloses that the positions of the cameras are controlled so that the cameras photograph an overlapping range when the stereoscopic measurement is conducted, since the cameras are controlled to track an object as allowed by items 12a and 12b of fig. 14, thus overlapping a range since the object must be in both the images. Kawashima et al discloses switching to operate the two-dimensional measurement portion in an initial condition, the condition that images have just been taken (fig. 14, items 5a, 5b, 15a and 15b), and switches to operate the stereoscopic measurement portion (fig. 14, item 14), since after the 2D measurement is done, it moves on to a 3D measurement, when the two-dimensional measurement portion detects an object (fig. 14, items 5a and 5b).

19. Regarding claim 19, Kawashima et al discloses switching to operate the stereoscopic measurement portion, as it continuously does so that the lighting can track the object (col. 15, lines 54-59), when the two-dimensional measurement portion detects a moving object since the 2D measurement portion tracks a moving object (col. 15, lines 28-30), and thus detects the moving object.

20. Regarding claim 21, Kawashima et al discloses a system comprising: a positional control portion for controlling positions of the cameras to change photographing directions of the cameras (fig. 14, items 10a, 10b, 12a and 12b); a two-dimensional measurement portion for conducting two-dimensional measurement of the object based on the image of the object, the image being obtained by at least one of the cameras (fig. 14, item 5a, 5b, 15a and 15b); a stereoscopic measurement portion for conducting stereoscopic measurement of the object based on the images of the object, the stereoscopic measurement including distance information for a plurality of points of the object (fig. 14, item 14), the images being obtained by at least two of the cameras (fig. 14, items 5a, 4b, 15a, 15b), said at least two cameras including at least the camera for providing an image for the 2D measurement portion (fig. 14, item 5a, 15a), the stereoscopic measurement portion being configured to perform the stereoscopic measurement when the first one and second one of the cameras are controlled to photograph an overlapping range which includes the object (fig. 15,.The switching is configured to control the provision of images from the cameras to the measurement portions, since the switching between 2D and 3D measurements controls the lighting and thus controls the provision of images, all this carried out by a switching portion (col.

5, lines 54-60) such that said at least two of the cameras from which images are obtained for conducting stereoscopic measurement include said at least one of the cameras from which the image of the object is obtained for the two-dimensional measurement portion, since both the images of the objects are used as the portion from cameras 4a and 4b are used for the 3D measurement, wherein in response to the measurement of the object by the 2D measurement portion based on the image obtained by at least the first one of the cameras (fig. 14, item 5a, 5b), the position control portion is adapted to respond by controlling the position of the first one of the camera (fig. 14, item 12a and 10a) based on a detected position of the object by the first one of the cameras (fig. 14, item 15a), so that the first and second cameras photograph the overlapping range of fig. 15, which includes the object, and the stereoscopic image processing conducts stereoscopic measurement of distance of a point of the object (fig. 14, item 14).

Kawashima et al does not disclose expressly that the stereoscopic measurement includes distance information for a plurality of points on the object and that the positional control portion controls the second one of the cameras using the information from the first one of the cameras.

Miramonti et al discloses stereoscopic measurements include distance information for a plurality of points on the object being examined/ tracked (abstract).

Kanade et al discloses that in a multiple camera system, wherein one camera's information (fig. 3, item 24) is used to control the positions of the second/ other ones of the cameras with a positional control unit (fig. 3, items 26, col. 4, lines 5-18).

21. Regarding claim 22, Kawashima et al discloses switching from said two-dimensional measurement portion to said stereoscopic measurement portion based, at least in part, on a measurement of the object conducted by said two-dimensional measurement portion, since the 2D measurement portion of items 15a and 15b are input into item 14.

22. Regarding claim 23, Kawashima et al discloses switching from said two-dimensional measurement portion to said stereoscopic measurement portion (fig. 14, arrow between items 15a and 14) when said two-dimensional measurement portion detects an object (fig. 14, items 5a and 5b).

23. Regarding claim 31, Miramonti et al discloses that the stereoscopic measurement comprises a distance image including distance information (abstract).

24. Claims 33, 35 and 37 are rejected for the same reasons as claim 31. Thus, the arguments analogous to that presented above for claim 31 are equally applicable to claim 33, 35 and 37. Claims 33, 35 and 37 distinguish from claim 31 only in that they have different dependencies, all of which have been previously rejected. Therefore, prior art applies.

25. Regarding claim 39, Kawashima et al discloses that the 3D measurement portion obtains distance information for a plurality of points of the object, wherein the distance information includes distance away from the object by finding the coordinates (fig. 14, item 14), the distance information being used for 3D measurement data, a position of the object (fig. 15). Miramonti et al discloses stereoscopic measurements include distance information for a plurality of points on the object being examined/ tracked

(abstract) and that distance information includes 3D shape information (abstract). Kanade et al discloses outputting as 3D measurement data, size of the object (col. 3, lines 41-51).

26. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawashima et al in view of Miramonti et al and Kanade et al, as applied to claim 1 above, and further in view of U.S. Patent No. 5864360 (Okauchi et al).

Regarding claim 29, Kawashima et al (as modified by Miramonti et al and Kanade et al) discloses all of the claimed elements as set forth above, and incorporated herein by reference. Kawashima et al discloses that the positional control portion allows for control of the position and posture of each of the cameras since it allows for rotation about the two axes in fig. 2 of the axis between items 3a and 2, and the axis at 3b,

Kawashima et al (as modified by Miramonti et al and Kanade et al) does not disclose expressly that the cameras are controlled so as to move symmetrically.

Okauchi et al discloses that two cameras can move about symmetrically (col. 2, lines 36-37).

Kawashima et al (as modified by Miramonti et al and Kanade et al) and Okauchi et al are combinable because they are from the same field of endeavor, i.e. controlling the movement of image apparatuses.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to control the cameras to move symmetrically.

The suggestion/motivation for doing so would have been to provide a more robust, flexible system to allow the cameras to take panoramic views or to function in a distinct manner.

Therefore, it would have been obvious to combine Kawashima et al (as modified by Miramonti et al and Kanade et al with Okauchi et al to obtain the invention as specified in claim 7.

27. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawashima et al in view of Miramonti et al and Kanade et al, as applied to claim 1 above, and further in view of U.S. Patent No. 3267431 (Greenberg et al).

Regarding claim 9, Kawashima et al (as modified by Miramonti et al and Kanade et al) discloses all of the claimed elements as set forth above, and incorporated herein by reference.

Kawashima et al (as modified by Miramonti et al and Kanade et al) does not disclose expressly an alarm output portion for raising an alarm based on an alarm signal output from the switching portion.

Greenberg et al discloses having an indicator to show a mode switch (col. 14, lines 1-5).

Kawashima et al (as modified by Miramonti et al and Kanade et al) and Greenberg are combinable because they are from the same field of endeavor, i.e. image processing systems.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to raise alarm in the switching portion.

The suggestion/motivation for doing so would have been to provide the user with indication of what the image processing system is doing, thus providing a more user-friendly system.

Therefore, it would have been obvious to combine the system of Kawashima et al (as modified by Miramonti et al and Kanade et al) with the indicator of Greenberg et al to obtain the invention as specified in claim 9.

28. Regarding claim 10, Greenberg et al discloses the alarm output portion raises the alarm, or turns on the indicator, when the switching portion switches (col. 14, lines 1-5). Kawashima et al discloses that the switching portion, switches between the two-dimensional measurement portion and the stereoscopic measurement portion to perform an operation, (fig. 14, items 15a and 15b to 14)

29. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawashima et al and Kanade et al in view of Miramonti et al, and further in view of U.S. Patent Application Publication No. 20030081821 (Mertelmeier et al) and further in view of U.S. Patent No. 6597801 (Cham et al).

30. Kawashima et al (as modified by Miramonti et al and Kanade et al) discloses all of the claimed elements as set forth above, and incorporated herein by reference.

Kawashima et al (as modified by Miramonti et al and Kanade et al) does not disclose expressly reducing resolution of the images, and switches between generation

of data with high resolution and generation data with low resolution appropriately to conduct stereoscopic measurement.

Mertelmeier et al discloses switching in alternation between a high and low resolution for stereoscopic imaging to develop multiply resolved images (pg. 1, pp 0008).

Kawashima et al (as modified by Miramonti et al and Kanade et al) and Mertelmeier et al are combinable because they are from the same field of endeavor, i.e. 3D imaging.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to switch between high and low resolution for 3D imaging.

The suggestion/motivation for doing so would have been to provide a more robust system by allowing different, multiply resolved volume images (Mertelmeier et al, page 1, paragraph 002) for possible examination and a more flexible system for examination. Providing many resolutions is beneficial because this allows for a more effective search of images for size-based features, as disclosed by Cham et al (col. 8, lines 35-54), thus providing a more robust system.

Kawashima et al (as modified by Miramonti et al, Kanade et al and Mertelmeier et al) and Cham et al are combinable because they are of the same field of endeavor, i.e. tracking objects.

Therefore, it would have been obvious to combine the system of Kawashima et al (as modified by Miramonti et al and Kanade et al) with the resolution switch of

Mertelmeier and the reasons of having multiple resolutions of Cham et al to obtain the invention as specified in claim 11.

31. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawashima et al in view of Miramonti et al and Kanade et al, and further in view of U.S. Patent No. 6396397 (Bos et al) and Examiner's Official Notice.

Kawashima et al (as modified by Miramonti et al and Kanade et al) discloses all of the claimed elements as set forth above, and incorporated herein by reference.

Kawashima et al (as modified by Miramonti et al and Kanade et al) does not disclose expressly each of the cameras includes an image pickup device in which a color filter having any one of three primary colors is arranged for each pixel, and when image data obtained by the cameras are processed, image data of pixels corresponding to only a color filter with a particular color in the image pickup device of each of the cameras are used.

Bos et al discloses a color filter (col. 7, line 56) on the sensors, which is equivalent to the camera, which is used to process image data corresponding to only a red color (col. 7, line 58-61).

Kawashima et al (as modified by Miramonti et al and Kanade et al) and Bos and are combinable because they are from the same field of endeavor, i.e. tracking systems.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to filter the colors and process only a particular color.

The suggestion/motivation for doing so would have been to provide a specific use in the tracking system, such as tracking a tail light.

Kawashima et al (as modified by Miramonti et al, Kanade et al and Bos et al) does not disclose expressly that the color filter has any one of the three primary colors arranged for each pixel.

Examiner takes official notice that it is well known in the art to separate primary colors, RGB, in a color filter.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to filter RGB.

The suggestion/motivation for doing so would have been to provide a user-friendly system by using a common way to separate colors.

Therefore, it would have been obvious to combine the system of Kawashima et al (as modified by Miramonti et al and Kanade et al) with the tracking of red of Bos et al and the RGB filter of the Examiner's official notice to obtain the invention as specified in claim 12. The applicant did not traverse the examiner's assertion of official notice. Therefore, the common knowledge or well-known in the art statement is taken to be admitted prior art.

32. Claims 15, 24, 25, 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawashima et al in view Miramonti et al and Kanade et al, as applied to claim 28 above, and further in view of U.S. Patent No. 3564132 (Baker et al).

Regarding claim 29, Kawashima et al (as modified by Miramonti et al and Kanade et al) discloses all of the claimed elements as set forth above, and incorporated herein by reference.

Kawashima et al (as modified by Miramonti et al and Kanade et al) does not disclose expressly that the controller is configured to switch from said second mode to said first mode based on an output from the stereoscopic image processing system which indicates the absence of an object detected in the image data, obtained from both the cameras. In particular, Kawashima et al does not disclose expressly what to do when there is an absence of the object in image data at all.

Baker et al discloses when there is an absence of a person, the system resets (col. 7, lines 14-15). When the system of Kawashima et al resets, then the second mode would switch directly into the first mode, since the first mode is the first step of the system.

Kawashima et al (as modified by Miramonti et al and Kanade et al) and Baker et al are combinable because they are from the same field of endeavor, i.e. image tracking.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to reset the system when no an absence is found.

The suggestion/motivation for doing so would have been to provide a way for more users to use the system by reading the system for another person, thus being a more cost-friendly, user-friendly system.

Therefore, it would have been obvious to combine the system of Kawashima et al (as modified by Miramonti et al and Kanade et al) with the resetting of Baker et al to obtain the invention as specified in claim 29.

33. Regarding claim 30, Kawashima et al discloses the positional control portion is configured to control the positions of the cameras allow for photographing directions different from each other (fig. 16, Θ_{m1t} and Θ_{m2t}) as seen in fig. 15, when the 2D measurement portion conducts 2D measurement, since the cameras follow an object (col. 15, lines 27-30) and controls the positions of the cameras so that the cameras photograph an overlapping range when the stereoscopic measurement is conducted, since the cameras are controlled to track an object as allowed by items 12a and 12b of fig. 14, thus overlapping a range since the object must be in both the images.

34. Claim 15 is rejected for the same reasons as claim 29. Thus, the arguments analogous to that presented above for claim 29 are equally applicable to claim 15. Claim 15 distinguishes from claim 29 only in that they have different dependencies, all of which have been previously rejected. Therefore, prior art applies.

35. Claims 24 and 25 are rejected for the same reasons as claims 29 and 30. Thus, the arguments analogous to that presented above for claims 29 and 30 are equally applicable to claims 24 and 25. Claims 24 and 25 distinguish from claims 29 and 30 only in that they have different dependencies, all of which have been previously rejected. Therefore, prior art applies.

36. Claims 13, 20, 36 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawashima et al in view of Miramonti et al and Kanade et al, as applied to claims 1, 17, 21 and 26 above, and further in view of U.S. Patent No. 6812835 (Ito et al). .

Regarding claim 36, Kawashima et al (as modified by Miramonti et al and Kanade et al) discloses all of the claimed elements as set forth above, and incorporated herein by reference.

Kawashima et al (as modified by Miramonti et al) does not disclose expressly that the controller is configured to respond to the detection of an object by said two-dimensional image processing system based on an image obtained by at least first one of the cameras, said controller being configured to respond by controlling the positions of the at least a first and a second one of said cameras, based on a detected position of the object by said first on of the cameras, so that the cameras photograph an overlapping range which includes the detected object.

Ito et al discloses a controller that is configured to respond to the detection of an object, that which supplies control signals (col. 2, lines 44-46) by a two-dimensional image processing system based on an image obtained by at least first one of the cameras, said controller being configured to respond by controlling the positions of the at least a first and a second one of said cameras (col. 2, lines 50-57), based on a detected position of the object by said first on of the cameras (col. 2, lines 45-47), so that the cameras photograph an overlapping range which includes the detected object, since both cameras contain the detected object.

Kawashima et al (as modified by Miramonti et al and Kanade et al) and Ito et al are combinable because they are from the same field of endeavor, i.e. tracking objects.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the second camera after the first camera detected a position.

The suggestion/motivation for doing so would have been to allow for a more secure, robust system by providing more images of the object, with more detail.

Therefore, it would have been obvious to combine 2D/3D cameras of Kawashima et al (as modified by Miramonti et al and Kanade et al) with the response of a second camera of Ito et al to obtain the invention as specified in claim 36.

37. Claim 38 is rejected for the same reasons as claim 36. Thus, the arguments analogous to that presented above for claim 36 are equally applicable to claim 38. Claim 38 distinguishes from claim 36 only in that they have different dependencies, all of which have been previously rejected. Therefore, prior art applies.

38. Regarding claim 13, Kawashima et al (as modified by Miramonti and Kanade et al) discloses that when the stereoscopic measurement/ image range overlap is conducted (Kawashima et al, item 14 and fig. 15), the cameras' positions are controlled concurrently, since the cameras both follow the object concurrently (fig. 14, item 12a and 12b, and concurrently with the use of a positional control of Kanade et al as well(fig. 3, items 24 and 26). Ito et al discloses that before the image range overlap, the positions of the cameras are controlled independently from each other (col. 2. lines 44-51). Therefore, with the use of Ito et al's independently moving cameras until the

detection of the object, then using the system of Kawashima et al (as modified by Miramonti and Kanade et al), the limitations in the claim are taught.

39. Claim 20 is rejected for the same reasons as claim 13. Thus, the arguments analogous to that presented above for claim 13 are equally applicable to claim 20. Claim 20 distinguishes from claim 13 only in that they have different dependencies, all of which have been previously rejected. Therefore, prior art applies.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KATHLEEN S. YUAN whose telephone number is (571)272-2902. The examiner can normally be reached on Monday to Thursdays, 9 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Werner can be reached on (571)272-7401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/KY/
5/7/2009

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